



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,938	07/14/2003	Jia-Chu Liu	88-2036A	6655

24114 7590 01/29/2004

LYONDELL CHEMICAL COMPANY
3801 WEST CHESTER PIKE
NEWTOWN SQUARE, PA 19073

EXAMINER

CHOI, LING SIU

ART UNIT PAPER NUMBER

1713

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/618,938

Applicant(s)

Liu

Examiner

Ling-Siu Choi

Art Unit

1713



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above, claim(s) 24 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

Art Unit: 1713

DETAILED ACTION

1. Claims 1-25 are now pending, wherein claims 1, 19, and 25 are independent ones.

Election/Restriction

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-23, drawn to a process to polymerize an olefin, classified in class 526, subclass 162.
 - II. Claims 24-25, drawn to an UHMWPE, classified in class 526, subclass 352.

3. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process such as a process using a metallocene as a catalyst.

Art Unit: 1713

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Mr. Shao-Hua Guo on January 15, 2004, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-23. Affirmation of this election must be made by applicant in replying to this Office action. Claims 24-25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

7. Claim 19 is objected to because of the following informalities: claim 19, line 5, "the supported catalyst of step (a), a clay" is suggested to be changed to --a transition metal complex,

Art Unit: 1713

a clay-- because the recitation "the supported catalyst of step (a), a clay, and a non-alumoxane activator" is not clear - the supported catalyst comprising a transition metal complex, a clay, and a non-alumoxane.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 6-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozawa (JP 2001-253909).

The present invention relates to a process to polymerize an olefin in the presence of

(a)	a clay
(b)	an activator
(c)	a transition metal complex having at least one pyridine moiety-containing ligand

(summary of claim 1)

Art Unit: 1713

Ozawa discloses a process to polymerize olefins in the presence of (a) a transition metal complex having a pyridine moiety-containing ligand, (b) an organoaluminum compound, and (c) a clay and /or ion exchanging layered compound (summary). Thus, the present claims are anticipated by the disclosure of Ozawa.

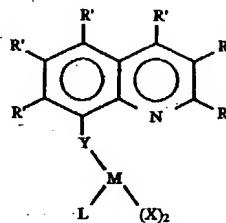
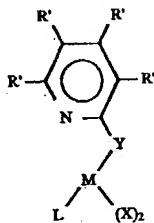
Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagy et al. (US 5,637,660).

Nagy et al. discloses a process to polymerize olefins in the presence of (A) a transition metal complex having a pyridine-containing ligand having the general formula of



Art Unit: 1713

Y being O, S, and NR, (B) a cocatalyst, and (C) a support, wherein the transition metal is titanium or zirconium; the cocatalyst is methylaluminoxane (MAO), lithium tetrakis(pentafluorophenyl)borate, lithium tetrakis(pentafluorophenyl)aluminate, or anilinium tetrakis(pentafluorophenyl)borate; the support can be a silica gel (abstract; col. 3, lines 40-67; col. 4, lines 1-16; claims 1, 4-5).

The difference between the present claims and the disclosure of Nagy et al. is the requirement of a clay as a support used in the present invention.

Ponasik, Jr. et al. disclose a catalyst system comprising a transition metal component having a ligand containing a nitrogen atom and/or a nitrogen-containing functional group, a Lewis acid such as a boron or aluminum containing acid, and a support (abstract; claim 12). Ponasik, Jr. et al. further disclose the support can be silica hydrogel, silica xerogel, silica aerogel, silica co-gel, or montmorillonite clay (col. 9, lines 41-47). A conclusion can be drawn that the use of silica gel is equivalent to and exchangeable with the use of clay as a support for the transition metal complex having a nitrogen-containing ligand. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the silica gel with a clay in the disclosure of Nagy et al. and thereby obtain the present invention.

Conclusion

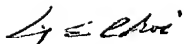
12. Any inquiry concerning this communication or earlier communications from the examiner

Art Unit: 1713

should be directed to Ling-Siu Choi whose telephone number is (703)305-0887.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on (703)308-2450.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703)308-2351.



Ling -Siu Choi

January 22, 2004